

deal more than some of us are doing now. Still another thing would be gained. We would have uniformity in our botanical writings, in terminology for instance. This is a matter that is needed badly now, when the Century Dictionary and Crozier's Dictionary of botanical terms have done what they could to spread the worst kind of botany abroad.

The society will have much to do, but we believe there are enough to help, and when once started, it will check the existing evil. C'est le premier pas qui conte.—THEO. HOLM, *Washington, D. C.*

[Mr. Holm would do well to broaden his ideas of "strictly scientific" botany.—EDS.]

NOTES AND NEWS.

BROWN UNIVERSITY bestowed upon Prof. W. W. Bailey the honorary degree of A. M. at the last commencement.

PROF. DR. L. WITTMACK of Berlin, editor of *Gartenflora* and member of the German Botanical Society, will attend the Congress in Madison.

HENRI DE VILMORIN has been appointed to represent the Société Botanique de France at the International Botanical Congress at Madison this month.

THE THIRD EDITION of *Les Maladies de la Vigne* has brought its author, Pierre Viala, well known in America, the Desmazières prize of the French Institute.

COUNT UGOLINO MARTELLI, of Florence, secretary of the Italian Botanical Society, and Prof. Luigi Macchiati of the Royal University of Modena, will be in attendance at the Madison Congress.

CATALPA SPECIOSA has just flowered for the first time in Europe, at Baden Baden, according to Mr. Max Leichtlin in *Gardener's Chronicle*. The trees were sent in 1879 by Professor C. S. Sargent.

ZOE is rapidly increasing the annotations upon our card catalogue of species, each number containing much material of all kinds. We note the name of Professor Douglas H. Campbell among the editors.

IN HIS handbook of the Pteridophytes of South Africa, just published, Mr. T. R. Sim includes 179 species, forty-two of which are peculiar to the cape. All Pteridophytes known to occur south of the tropic of Capricorn are included.

AN INTRODUCTION TO SYSTEMATIC BOTANY, by Prof. Charles E. Bessey, of the University of Nebraska is announced from the press of Henry Holt & Co. The author proposes to make the work correspond to its title. It is intended for beginners, and the students will be introduced to plants of all the groups.

THE REV. Arthur C. Waghorne, of Newfoundland, has for sale sets of Labrador Sphagna (25) for \$2.00, and sets of Newfoundland and
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Labrador Sphagna (44) for \$4.00, named chiefly by Drs. Warnstorff and Eaton. Apply, during his absence on the Labrador, to Mr. A. T. Waghorne, City Engineer's Office. S. Whies, Newfoundland.

MR. THOMAS MEEHAN has been honored by the presentation of a large and beautiful silver plaque encased in carved mahogany and plate glass from the citizens of Philadelphia in recognition of his successful efforts in securing the establishment of small parks in various parts of their city. The gift is an elaborate design of high artistic merit.

A REVIEW of recent investigations upon carbohydrates written by Prof. W. E. STONE, appeared in the July number of "Agricultural Science," pages 177-186. It gives a good insight into the new and numerous investigations carried out by Tollens and his staff, as well as by others who are working under the influence of Tollens' new teachings in this particular field.—BAY.

IN A SERIES of about forty experiments carried out by W. Detmer (Ber. d. deutsch bot. Ges., XI. 139) it was found that plant organs without chlorophyll, (e. g., petals, roots, mycelium) exhaled the same amount of carbon dioxide in darkness as in light, whether direct or indirect, the temperature being kept the same. Furthermore no daily periodicity could be detected.

AN ERROR sometimes made in the formation of specific names is pointed out by Saint-Lager¹. When the specific name takes the form of a Latin adjective, compounded from a noun and an adjective, the stem word should be united to the adjective with an *i*, although the noun may belong to the first declension. Thus, *rutæfolius*, *tiliæfolius*, *calendulæflorus*, *tunæformis*, etc., are incorrect and should be written *rutifolius*, *tiliifolius*, *calenduliflorus*, *tuniformis*, etc.

FROM RECENT REPORTS of the office of Experiment Stations we learn that there are fifty-four agricultural experiment stations in the United States, of which thirty-one employ botanists. Twenty-two stations have each one botanist, and nine have two, one of these being an assistant in most cases. This makes a total of forty persons connected with the stations who are engaged in botanical research. Of this number ten are also working in entomology, three in horticulture, one in aboriculture and one in meteorology.

A TRANSLATION of Zimmermann's work on the methods in microscopical botany by Dr. James E. Humphrey is announced for August. The work will be a very acceptable addition to manuals for the laboratory. It covers in about 300 pages the various operations of preparing various kinds of materials for the microscope, including microtome work, and the detection of organic and inorganic substances by micro-chemical methods, together with methods for bacteria. The work will be illustrated.

¹Un chapitre de grammaire à l'usage des botanistes. Paris, Baillière et Co. 1892.

"A NATURAL system of the action of poisons" is the title of a new book published by Dr. O. Loew in Munich. The author regards these actions with special reference to the protoplasm, and its constituents. The book contains a rich amount of new and important facts which bear directly upon physiological and biological questions (living albumen, immunity, etc.) Complying with the author's wish, we shall give a review somewhere else; but it ought to be said here that Loew's book must receive attention from all students of physiology.—BAY.

THE BULLETINS from the experiment stations, which have come to hand since the last notice, include two (Va., no. 20 and S. D., no. 35) upon specific plant diseases and their remedies, one by T. A. Williams, (S. D., no. 33) on some plants injurious to stock (loco weeds and ergot), one by Geo. F. Atkinson (Cornell, no. 53) on œdema of the tomato, a very interesting non-parasitic disease, and one (Ohio, Tech. ser., I, 3) containing a number of articles relating to the state flora, including a full bibliography, by W. A. Kellerman, Aug. D. Selby, Wm. C. Werner, and Freda Detmers.

WEHME¹ cultivated a new fungus of which he describes two species namely *Citromyces Pfefferianus*, and *C. glaber*. It belongs to the group of moulds still imperfectly known that breaks up sugar and forms, besides other products, an organic acid. The new forms here mentioned may be caught from the air, and develop in solutions of sugar and other nutritive matter. It transforms half or more of the dextrose into citric acid, and can be used for the manufacturing of the latter. The two species named here will be more fully described later. Their maximum of growth lies below that of their fermentative power. They seem to be facultative anaërobionts. Anorganic acids, even in small proportions, and CO₂ have a deleterious effect as well upon growth as upon fermenting power.—BAY.

ZACHARIAS PRESENTS a paper in the Ber. d. deutsch. bot. Gesells. XI. 193, on the chemical constitution of the protoplasm. So far as has been ascertained certainly the cell protoplasm and the cell nucleus consist for a greater portion of their mass of substances which are insoluble in artificial gastric juice. To these substances belong the greater part of the material of the chromatin bodies of the nucleus. The other insoluble substances, heretofore passing generally under the name of plastin, show even after digestion a different reaction from those of the nucleus. Both protoplasm and the nucleus contain also proteids soluble in digestive fluid. The nucleolus is particularly rich in these, whereas the cell protoplasm, especially in full grown plant cells, seems to be poor in soluble proteid. Globulin and albumin, both of which are widely distributed in plant as in animal cells, do not seem to form a considerable part of protoplasm. The latter appears to be made up in the main of far more complex proteid substances.

¹Ueber Citronensäure-Gährung. (Sep. from. Sitzungsber. d. kgl. preuss. Acad. d. Wiss. zu Berlin. xxix. pp. 519-523, 1893.)

BELAJEFF'S earlier researches on the germination of the pollen grain in the conifers and the homologies of its organs have been referred to in this place. More recent researches support his earlier ones and his conclusions on the homologies are interesting. He finds that the pollen tubes of the Abietinæ have the most complex structure, because at the base of the tube there are two small fixed cells which he considers the vegetative cells of the prothallium. The large cell which forms the tube is homologous with the antheridium of the cryptogams. This antheridium consists of a large outer cell, which extends to form the tube and answers to the wall-cells, and of an inner cell which is the equivalent of the mother cell of the spermatogenous complex. This mother cell divides into three cells, of which the two anterior function in fertilization while the third is disorganized. In the Cupressinæ, however, the structure of the pollen tube is much simpler, since there are no fixed cells, the entire prothallium being reduced to an antheridium which is like that of the Abietinæ. In *Taxus* a further simplification occurs in that the mother cell in the antheridium divides into only two cells of which one is functionless. The parts in the angiosperms are essentially as in *Taxus*.—Cf. *Ber. d. deutsch. bot. Gesells.* XI (1893). 198.

THE OCCURRENCE and physiological significance of myrosin in plants has been the subject of a research by Wilhelm Spatzier. His results are published in Pringsheim's *Jahrbücher*, xxv. (1893). 39, and may be thus summarized. Myrosin occurs in the Cruciferae, Rosedaceae, Violaceae, and Tropaeolaceae; in the first two in the seeds and vegetative organs, in the last two only in the seeds. In the seeds and vegetative organs of the Cruciferae and in the seeds of the Tropaeolaceae it is found in special cells, the myrosin tubes. In the aerial vegetative parts of the Resedaceae it is contained exclusively in the guard cells of the stomata; the roots contain no myrosin. In the seeds of *Viola* and *Reseda* no myrosin tubes could be discovered. In the myrosin tubes of the vegetative organs the myrosin exists in a dissolved state, whereas in seeds which are poorer in water, it is always in solid homogeneous granules, without inclusions, about the size of the aleurone grains. It is a product of the protoplasm. Its formation is independent of light and continues as long as the formation of new organic material goes on. From the parts of a plant which are becoming functionless it is sometimes not, sometimes partially, but never wholly, resorbed; so that it seems to be intermediate between secretions in the strict sense and reserve material. Myrosin doubtless serves to form glucosides, of which however we know but two, potassic myronate and sinalbin, the latter being the so-called "mustard oil." What other glucosides it may form and what their rôle in the plant economy may be is unknown.